

REMARKS

Claims 1-23 are in this application and are presented for consideration. By this Amendment, Applicant has amended claims 1, 2, 4, 5, 7, 9, 10, 12-15 and 17-21. Applicant has added new dependent claims 22 and 23 to further clarify the features of the invention. Claims 22 and 23 further define the feeding devices of the present invention, which are different than the feeding devices of Hamada et al. and DE 20103 412 U1.

The drawings have been objected to as failing to comply with 37 CFR 1.84(p)(5) because the Office Action states that reference character "28" is not mentioned in the description.

Applicant has attached a replacement sheet of drawings of Figure 2. Applicant has removed reference character "28" from Figure 2.

The disclosure has been objected to because of minor informalities.

Applicant has amended the specification as shown above to address this issue. Applicant wishes to thank the Examiner for the careful review of the specification.

Claims 20 and 21 have been objected to because of minor informalities.

Applicant has amended claims 20 and 21 to cure these informalities. Applicant wishes to thank the Examiner for the careful review of the claims.

Claims 1-21 have been rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

Applicant has amended the claims paying close attention to the Examiner's remarks.

It is Applicant's position that the claims as now presented are clear and fully comply with the requirements of the statute.

Claims 1-21 have been rejected under 35 U.S.C. 103(a) as being unpatentable over DE 201 03 412 U1 (hereinafter "DE '412") in view of Hamada et al. (U.S. 5,267,683).

The present invention relates to a clamping device for body part components with a component clamping contour including a component flange. The device comprises a clamping device having a frame structure with a plurality of pairs of clamping units. The clamping units are independently movable. This allows the clamping units to move simultaneously in a row or one at a time. Each clamping unit has one or more clamping segments for engaging the component contour such that the one or more clamping segments form a clamping segment contour. The clamping segment contour has substantially the same shape as the component clamping contour. This advantageously provides a secure clamping action that is extremely space efficient. This advantageously allows for more free space for receiving machining devices, such as welding machines and the like. The prior art as a whole fails to disclose such features or space efficiency advantages.

DE '412 discloses a welding device for welding multi-part workpieces. The welding device 1 has a tensioning device 8 for tensioning workpiece parts 3, 4 such that the workpiece flanges 5, 6 are in contact with one another. A welding tool 20 is aimed at the flange end side with a pressure element 22 pressing together the workpiece flanges plus a movement device 14 for generating a relative movement between the workpiece 2 and the welding tool. The tensioning device has several tensioners 10 with a support device 13 and a movable tensioning

element 12 for the tensioning and alignment of the workpiece flanges.

DE '412 fails to teach and fails to suggest the combination of a clamping device having a plurality of pairs of clamping units that have one or more clamping segments for engaging a clamping contour of body part components such that the contour of the one or more clamping segments engaging the body part components form a contour that is substantially identical to the clamping contour of the body part components. At most, DE '412 discloses a tension device 8 for tensioning workpiece parts 3, 4 during welding. However, the tension device 8 of DE '412 does not have a plurality of pairs of clamping units as claimed. Compared with DE '412, the clamping device of the present invention has a plurality of pairs of clamping units that each have one or more clamping segments for engaging a clamping contour of body part components such that the one or more clamping segments are arranged in a substantially similar shape as the clamping contour of the body part components. This advantageously provides a secure clamping of the components. This ensures that the parts do not come loose during welding or other machining processes. The fact that the one or more clamping segments form a contour that is substantially identical to the clamping contour of the body part components is significant in the present invention because the clamping arrangement advantageously reduces the amount of space that the clamping units occupy. This advantageously allows more free space for receiving machining devices, which perform machining operations on the body part components. DE '412 fails to provide such advantages since DE '412 does not direct the person of ordinary skill in the art towards a clamping device having a plurality of pairs of adjacent clamping units as claimed. As such, the prior art as a whole takes a different approach and fails

to provide any teaching or suggestion for the claimed combination.

Hamada et al. discloses a set of rear setting jigs 9, which align and hold side panel W₅ at front and rear door openings W_{5a}, are detectably mounted on respective holder 8c which is fixed to an inner surface of upper beam 8b via supporting arm 9a which laterally extends from each setting jib 9. By moving a movable frame 8 to the welding position, the side panel W₅ is combined to a floor panel W₁ while the side panel W₅ is held in an aligned condition by the setting jibs 9. Under this condition, the side panel W₅ is welded to the floor panel W₁ by a plurality of welding robots 10 which are mounted on the lower beam 8b. The jig 9 comprises a jig main body 9b, which can be passed into the compartment side of the motorcar through a door opening W_{5a}, and a plurality of clamping members 9c. The respective clamping member 9c is formed by vertically providing a leg piece 9c₃ which extends laterally outwards on an external surface of a base plate 9c₂ which is mounted on the jig main body 9b via a bracket 9c₁. At the front end portion of the leg piece 9c₃ there is fixedly provided a workpiece receiving member 9c₄ which receives an external surface of the door opening edge portion. A clamping arm 9c₅ for clamping the door opening edge against the workpiece receiving member 9c₄ is swingably provided on the leg piece 9c₃. The clamping arm 9c₅ is arranged to be opened and closed by an opening and closing cylinder 9c₆ which is mounted on the internal surface of the base plate 9c₂. The jig main body 9b is constructed by binding two pieces of looped pipes 9b₁. These pipes have formed therein a connecting port 9b₂ for connecting external pipes. In a position for mounting respective clamping member 9c there are formed connecting ports 9b₃ for connecting the respective clamping member 9c. The bracket 9c₁ of the respective clamping

member 9c has formed therein a pair of fluid passages 9c₈ which conform to the connecting ports 9b₃ of the pipes 9b₁. These fluid passages 9c₈ are made to be in fluid flow communication with both cylinder chambers inside the opening and closing cylinder 9c₆ of the respective clamping member 9c via passages which are formed in the base plates 9c₂ and cylinder barrel. According to this arrangement, the operating fluid can be supplied to the opening and closing cylinder 9c₆ of the respective clamping member 9c by using the jig main body 9b as the piping material for the operating fluid.

Hamada et al. fails to provide any teaching or suggestion for the combination of a clamping device having a plurality of independently movable pairs of clamping units wherein each pair of clamping units has one or more clamping segments. At most, Hamada et al. discloses a jig 9 having clamping members 9c. However, Hamada et al. fails to disclose that the clamping members 9c are independently movable. In contrast to Hamada et al., the clamping units of the present invention are independently movable. This advantageously allows the clamping units to be moved simultaneously so that the clamping units form a row arrangement of clamping units when the clamping units are in a support body component position. This advantageously ensures that the body components are securely held. Compared with the present invention, Hamada et al. provides no suggestion for the clamping members 9c being independently moveable and provides no teaching of clamping units that form a row arrangement. Hamada et al. merely discloses that an operating fluid is supplied to an opening and closing cylinder 9c₆ of a respective clamping member 9c by using a jig main body 9b as the piping material for the operating fluid. As such, Hamada et al. only directs the person of

ordinary skill in the art toward clamping members 9c that open and close, but Hamada et al. fails to direct the person of ordinary skill in the art toward independently movable clamping members 9c that are movable simultaneously. Accordingly, Applicant respectfully requests that the Examiner favorably consider claims 1 and 21 as now presented and all claims that respectively depend thereon.

Favorable consideration on the merits is requested.

Respectfully submitted
for Applicant,



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Attached: (1) Sheet of Replacement Drawings
Petition for One Month Extension of Time

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